

REMARKS

The Office Action dated March 5, 2009 has been received and carefully noted. The above amendments and the following remarks are being submitted as a full and complete response thereto.

Claims 8-18 have been rejected, and claims 1-7 have been withdrawn, per the telephone conversation regarding the restriction requirement between the Examiner and Mr. George Oram on November 20, 2008. Claims 8-18 have been amended. Thus, claims 1-18 are pending in this application. Support for the amendments may be found in the specification as originally filed. Applicants submit that no new matter is added. Applicants respectfully request reconsideration and withdrawal of all rejections and objections.

Objections to the Specification

The specification is objected to for informalities. In particular, the Office Action stated that the claims are referred to in the specification in paragraphs [0009]-[0026], and paragraphs [0093]-[0095] are unclear as written.

Applicants submit that they have amended the specification to overcome these rejections. Accordingly, Applicants respectfully request withdrawal of the objection of the specification.

Objections to the Claims

Claim 8 is objected to because the Office Action states that claim 8 indicates a step of “introducing flow rates”, but the Office Action believes that “introducing flows” is the actual step performed.

Applicants submit that they have amended claim 8 to overcome this objection. Accordingly, Applicants respectfully request withdrawal of the objection to claim 8.

Rejections Under 35 U.S.C. §112

Claim 10 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claim 14 is rejected under 35 U.S.C. §112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps.

Applicants respectfully submit that claims 10 and 14 have been amended to overcome these rejections. Accordingly, Applicants respectfully request withdrawal of the §112 rejection of claims 10 and 14.

Rejection Under 35 U.S.C. §102

Claims 8, 10, 11, 13 and 15 are rejected under 35 U.S.C. §102(b) as being anticipated by Yamoto et al. (U.S. Patent Application Publication No. 2002/010447, hereinafter “Yamoto”). Applicants respectfully traverse this rejection.

Claim 8, as amended, recites:

A method for forming a thin film on a substrate by using the catalyst action of an exothermic catalyst body resistance-heated in a reactive vessel capable of performing vacuum pumping, comprising:

- an activating step of introducing pulsed flows of thin-film-component gas and hydrogen gas, bringing the gases into contact with the exothermic catalyst body, and generating active species of the gases;

- a film forming step of forming a thin film for each unit layer on a substrate;

- a surface treating step of surface-treating the thin film for every unit layer by hydrogen gas active species;

- another surface treating step of surface-treating the thin film for every unit layer by thin-film-component gas active species; and

- repeating one of the one surface treating step and the other surface treating step during one cycle,**

- wherein the surface treating step and the other surface treating step can be carried out in any order, and

- wherein a laminated thin film is formed by using a series of steps for respectively performing surface treatment after forming a film as one cycle, and repeating a plurality of cycles. (emphasis added)

Applicants submit that Yamoto fails to teach or suggest at least the step of “repeating one of the one surface treating step and the other surface treating step during one cycle”, as recited in claim 8.

For at least the above reasons, Applicants respectfully submit that Yamoto does not anticipate independent claim 8 and claims 10, 11, 13, and 15, which depend therefrom. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 8, 10, 11, 13 and 15 under 35 U.S.C. §102(b) over Yamoto.

Rejection Under 35 U.S.C. §103

Claims 12 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Yamoto as applied to claim 8 above in further in view of Wang et al. (U.S. Patent

RESPONSE UNDER 37 C.F.R. §1.111

Application Number: 10/593,444

Attorney Docket Number: 029567-00011

Application Publication No. 2004/0121085, hereinafter “Wang” and Dip et al. (U.S. Patent Application Publication No. 2005/0066892, hereinafter “Dip”). Applicants respectfully traverse this rejection.

As discussed above, Yamoto fails to teach or suggest all the features of claim 8, as amended. Wang and Dip fail to cure the defects of Yamoto. For at least the above reasons, Applicants respectfully submit that claims 12 and 14 are not obvious over the proposed combination of Yamoto, Wang and Dip. Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 12 and 14 under 35 U.S.C. §103(a) over Yamoto in view of Wang and Dip.

Claims 8, 9, 11, 13 and 15-18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Yamoto in view of Mase et al. (U.S. Patent No. 5,103,287, hereinafter “Mase”) and Raaijmakers et al. (U.S. Patent Application Publication No. 2002/0052124, hereinafter “Raaijmakers”). Applicants respectfully traverse this rejection.

As discussed above, Yamoto fails to teach or suggest all the features of claim 8, as amended. Applicants submit that Mase and Raaijmakers fail to cure the defects of Yamoto. The Office Action admits that Yamoto in view of Raaijmakers fails to teach the step of “repeating one of the one surface treating step and the other surface treating step during one cycle”, as recited in claim 8, as amended. The Office Action takes the position, however, that it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the teaching of a multi-layer nitride film, as taught by Mase, to the silicon nitride film forming technique of Yamoto in view of Raaijmakers because it would ensure a denser film because each layer of composite would be subject to the further nitriding and densification treatment.

Applicants submit that Mase mentions a semiconductor structure having a multi-layered silicon nitride film which would presumably be formed by multiple film formation cycles. Mase fails to teach or suggest “repeating one of the one surface treating step and the other surface treating step **during one cycle**”, (emphasis added) as recited in claim 8.

For at least the above reasons, Applicants respectfully submit that claims 8, 9, 11, 13 and 15-18 are not obvious over the proposed combination of Yamoto, Mase and Raaijmakers. Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 8, 9, 11, 13 and 15-18 under 35 U.S.C. §103(a) over Yamoto in view of Mase and Raaijmakers.

Claims 8-18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Yamoto in view of Wang. Applicants respectfully traverse this rejection.

As discussed above, Yamoto fails to teach or suggest all the features of claim 8, as amended. Wang fails to cure the defects of Yamoto.

For at least the above reasons, Applicants respectfully submit that claims 8-18 are not obvious over the proposed combination of Yamoto and Wang. Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 8-18 under 35 U.S.C. §103(a) over Yamoto in view of Wang.

CONCLUSION

Applicants respectfully submit that this application is in condition for allowance and such action is earnestly solicited. If the Examiner believes that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below to schedule a personal or telephone interview to discuss any remaining issues.

In the event that this paper is not being timely filed, Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to Counsel's Deposit Account Number 01-2300, referencing Docket Number 029567-00011.

Respectfully submitted,



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